LEHIGH

HEIDELBERGCEMENT Group

OPERATION AND MAINTENANCE PLAN

Prepared By:

LEHIGH SOUTHWEST CEMENT COMPANY

Redding, CA Plant

May, 2013

Update: August 2014

1.0 INTRODUCTION

This O&M Plan (Plan) for the Lehigh Southwest Cement Company, Redding, CA, was prepared to meet the requirements of the:

- National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines (RICE MACT: 40 CFR 63, Subpart ZZZZ).

The procedures to maintain and monitor compliance with the RICE MACT Standards are presented in the Plan. Upon review of the regulatory requirements defining major/area sources, and based on a review of existing emissions data and the design and operation of the facility, the Redding Plant is a major source. As a result of this major source determination, the only affected source under the NESHAP rule for Stationary RICE at the Redding facility is the kiln auxiliary drive. Specifically this Plan addresses:

- Procedures for proper operation and maintenance of the engine.
- Procedures to continuously monitor the hours of operation.

2.0 PROCESS DESCRIPTION

Lehigh Southwest Cement Company manufactures portland cement at the Redding, CA plant. To produce portland cement, raw materials including limestone, silica sources, and alumina sources are mined on site or purchased and delivered to the plant by truck and railcar. The raw materials are then fed into the raw mill system where they are blended in appropriate portions, ground and conveyed into the kiln feed storage silo. This material, known as kiln feed, is then conveyed to the preheater/precalciner and then to the rotary kiln. The rotary kiln completes the pyroprocessing of raw materials into the intermediate product, "clinker". The clinker is quenched and cooled, and is transferred to storage silos. As needed, the clinker is fed into the finish mill system where it is blended with gypsum and ground into a final product called portland cement.

In summary, the production of Portland cement is a four-step process:

1) Raw material production and/or acquisition,
2) Raw material preparation,
3) Raw material pyroprocessing to form clinker, and
4) Clinker grinding to produce cement.

3.0 AFFECTED SOURCES

The engine(s) affected and regulated under this O&M Plan are:

- Detroit Model V-71 489-bhp
- Five Caterpillar Model ZW3516-CAT 2132-bhp

The initial notification requirement does not apply for an existing stationary emergency RICE.

4.0 OPERATING PROCEDURES

The operation of the Detroit Model V-71 shall be limited to a total 3500 hours/year. The five Caterpillar Model ZW3516 engines shall be limited to a total of 300 hours/year.

The engines may be operated for a maximum of 100 hours per year for specified purposes, which are the following:

- For maintenance checks and readiness testing.
- For emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) in the event of an Energy Emergency Alert Level 2.
- For periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.
- For non-emergency purposes for up to 50 hours per year, but those 50 hours are counted towards the total 100 hours provided for operation other than for true emergencies. The 50 hours per year for non-emergency purposes cannot be used to generate income for a facility, for example, to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

Rule specifies the following work practice during operation:

- Minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes.

5.0 MAINTENANCE PROCEDURES

Preventative maintenance is performed on the generators on a prescribed basis to ensure proper operation. The rule specifies the following work practice requirements:

- Change oil and filter every 500 hours of operation or annually, whichever comes first, except that sources can extend the period for changing the oil if the oil is part of an oil analysis program as discussed below and the condemning limits are not exceeded;
- Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; and

- Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.

Sources also have the option to use an oil change analysis program to extend the oil change frequencies specified above. The analysis program must at a minimum analyze the following three parameters: Total Base Number, viscosity, and percent water content. The analysis must be conducted at the same frequencies specified for changing the engine oil. If the condemning limits provided below are not exceeded, the engine owner or operator is not required to change the oil. If any of the condemning limits are exceeded, the engine owner or operator must change the oil before continuing to use the engine. The condemning limits are as follows:

• Total Base Number is less than 30 percent of the Total Base Number of the oil when new; or

• Viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or

• Percent water content (by volume) is greater than 0.5.

6.0 MONITORING REQUIREMENTS

Must keep records of the maintenance conducted on the emergency engine in order to demonstrate that you operated and maintained the stationary RICE and after-treatment control device (if any) according to the maintenance plan. The records must include, at a minimum: oil and filter change dates and corresponding hour on the hour meter; inspection and replacement dates for air cleaners, hoses, and belts; and records of other emission-related repairs and maintenance performed [see Table 1].

Must install a non-resettable hour meter on the engine to record the hours of operation of the engine.

Must keep records of the engine hours of operation. The records must document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation. If the engine is used for the purposes below, the records must document the notification of the emergency situation, and the date, start time, and end time of engine operation for these purposes.

- If the engine is used for the purposes of emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP–002–3, Capacity and Energy Emergencies, or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP–002–3; or
- For periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency; or
- The 50 hours per year for nonemergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:
    1) The engine is dispatched by the local balancing authority or local transmission and distribution system operator.
    2) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.
    3) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.
    4) The power is provided only to the facility itself or to support the local transmission and distribution system.
    5) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.

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Table 1: RECORDKEEPING for NESHAP SUBPART ZZZZ

Oil & Filter	Air Cleaner	Hoses & Belts
Changed Every: ☐ 500 hours OR ☐ Annually (if this comes first) Date: Hour meter reading:	Inspect Every 1,000 hours ☐ Replaced Date:	Inspect Every 500 hours ☐ Replaced Date:
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